R.F. PENTODE

Pentode with variable transconductance intended for use as R.F. or I.F. amplifier.

QUICK REFERENCE DATA			
Anode current	I_a	12	mA
Transconductance	S	4.4	mA/V
Amplification factor	$\mu_{g_2g_1}$	21	
Internal resistance	R_i	400	kΩ

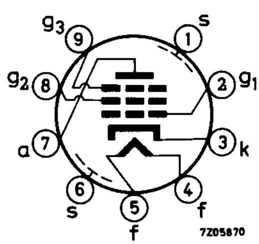
HEATING: Indirect by A.C. or D.C.; series supply

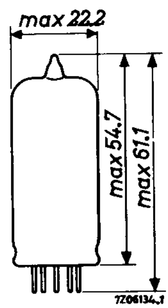
Heater current	I_f	100	mA
Heater voltage	V_f	12.6	V

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval





CAPACITANCES

Anode to all except grid No.1	$C_{a(g_1)}$	5.1	pF
Grid No.1 to all except anode	$C_{g_1(a)}$	5.5	pF
Anode to grid No.1	C_{ag_1}	max. 0.002	pF
Grid No.1 to heater	C_{g_1f}	0.05	pF

TYPICAL CHARACTERISTICS

Anode voltage	V_a	170	V
Grid No.2 voltage	V_{g_2}	100	V
Grid No.3 voltage	V_{g_3}	0	V
Anode current	I_a	12	mA
Grid No.1 voltage	V_{g_1}	-1.2	V [1]
Grid No.2 current	I_{g_2}	4.4	mA
Transconductance	S	4.4	mA/V
Internal resistance	R_i	0.4	MΩ
Amplification factor	$\mu_{g_2g_1}$	21	

OPERATING CHARACTERISTICS

Anode voltage, supply voltage	$V_a = V_b$	200		170		V
Grid No.3 voltage	V_{g_3}	0		0		V
Grid No.2 resistor	R_{g_2}	24		15		kΩ
Cathode resistor	R_k	130		130		Ω
Grid No.1 voltage	V_{g_1}	-1.95	-20	-1.95	-20	V
Anode current	I_a	11.1	-	11.0	-	mA
Grid No.2 current	I_{g_2}	3.8	-	3.9	-	mA
Transconductance	S	3.85	0.16	3.8	0.11	mA/V
Internal resistance	R_i	550	-	450	-	kΩ
Equivalent noise resistance	R_{eq}	4.2	-	4.5	-	kΩ
Input conductance f = 50 MHz	g	102	-	102	-	μA/V

[1]) In this case control grid current may occur. If this is not permissible, the negative grid bias should be increased to a value of 1.5 V at least.

TYPICAL CHARACTERISTICS AND OPERATING CHARACTERISTICS (continued)

Anode voltage, supply voltage	$V_a = V_b$	100		100		V
Grid No.3 voltage	V_{g3}	0		0		V
Grid No.2 resistor	R_{g2}	15		0		kΩ
Cathode resistor	R_k	130		160		Ω
Grid No.1 voltage	V_{g1}	−1.05	−10	−1.9	−10	V
Anode current	I_a	6.0	−	8.6	−	mA
Grid No.2 current	I_{g2}	2.1	−	3.1	−	mA
Transconductance	S	3.2	0.15	3.3	0.16	mA/V
Internal resistance	R_i	475	−	300	−	kΩ
Equivalent noise resistance	R_{eq}	3.5	−	4.7	−	kΩ
Input conductance f = 50 MHz	g	120	−	102	−	μA/V

LIMITING VALUES (Design centre rating system)

Anode voltage	V_{a_o}	max.	550	V
	V_a	max.	250	V
Anode dissipation	W_a	max.	2.25	W
Grid No.2 voltage	V_{g2_o}	max.	550	V
	V_{g2}	max.	250	V
Grid No.2 dissipation	W_{g2}	max.	0.45	W
Cathode current	I_k	max.	16.5	mA
Grid No.1 resistor	R_{g1}	max.	3	MΩ
Grid No.3 resistor	R_{g3}	max.	10	kΩ
Cathode to heater voltage	V_{kf}	max.	150	V

PHILIPS

Data handbook

Electronic components and materials

UF89

page	sheet	date
1	1	1969.01
2	2	1969.01
3	3	1969.01
4	FP	1999.07.29